

DIRECT TESTIMONY OF
STEPHEN M. CUNNINGHAM
ON BEHALF OF
SOUTH CAROLINA ELECTRIC & GAS COMPANY
DOCKET NO. 2001- E

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Stephen M. Cunningham. My business address is 111 Research Drive, Columbia, SC 29203.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by South Carolina Electric and Gas Company (SCE&G) and manage the development of new generation projects.

Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE.

A. I received a Bachelor of Science degree in Electrical Engineering from Clemson University in 1972. I began my career with Duke Power Company in 1972 performing design work on coal and nuclear generating plants. In 1974 I was employed by SCE&G to work on the design, construction and operation of the V.C. Summer Nuclear Station. During my fifteen year affiliation with the nuclear project I performed various engineering functions from design to management. In 1989 I transferred to the fossil and hydro generation group where I managed the design engineering organization. From 1992 through 1996 I was Plant Manager at SCE&G's Wateree Station. In 1996 I moved to the Power Block

1 Services group where I currently manage and coordinate the development of
2 new generation projects.

3 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

4 **A.** The purpose of my testimony is to provide a general description of the proposed
5 Jasper County Generation Project.

6 **Q. PLEASE DESCRIBE THE JASPER COUNTY GENERATION PROJECT**
7 **WHICH SCE&G PLANS TO BUILD.**

8 **A.** SCE&G plans to build a combined cycle generating plant on a rural site near
9 Hardeeville in Jasper County, South Carolina. See my Exhibit No. ____ (SMC-1)
10 and ____ (SMC-2) for the location and general arrangement of the project. The
11 plant will be composed of three General Electric 7FA combustion turbine
12 generators, three heat recovery steam generators (HRSG) and one steam
13 turbine generator. The HRSGs convert heat in the exhaust from the combustion
14 turbines into steam, which then powers the steam turbine to generate additional
15 electricity. The combustion turbines will be equipped with inlet chilling to
16 maximize the output of the plant during hot weather. The plant will generate
17 approximately 775 net megawatts during the winter and 750 net megawatts
18 during the summer. The plant will have the capability to generate additional
19 "peaking" output of up to 120 megawatts using supplementary firing. This is
20 accomplished by burning additional fuel in burners located in the inlet duct to the
21 HRSGs, which produces more steam and more output from the steam turbine-
22 generator. The peak output from the plant will be approximately 900 megawatts
23 during the winter and 875 megawatts during the summer. When completed, this

1 generating facility will comply with all applicable federal, state and local laws and
2 regulations.

3 **Q. WHAT TYPE OF FUEL WILL BE USED BY THE PLANT?**

4 **A.** Natural gas will be the primary fuel for the plant with distillate (No. 2) fuel oil as a
5 back-up. High pressure natural gas will be supplied to the site through a
6 connection to interstate pipelines. The interstate pipelines will deliver natural gas
7 from both the Gulf of Mexico region and from the liquified natural gas (LNG)
8 facility near Savannah, Georgia. Distillate fuel will be delivered to the site from
9 local terminals in truck tankers and stored on the plant site in above-ground
10 storage tanks.

11 **Q. WHAT ENVIRONMENTAL CONTROLS WILL BE INCLUDED IN THE PLANT?**

12 **A.** The plant will use dry low NOx combustors when burning natural gas and water
13 injection for NOx control when burning distillate oil. In addition the HRSGs will
14 include selective catalytic reduction (SCR) systems for further reduction of NOx
15 emissions. Low sulfur distillate oil will be used to minimize oxide of sulfur
16 emissions when burning oil. A closed cycle cooling system with evaporative
17 cooling towers will be used to transfer heat from the steam turbine condensers to
18 the atmosphere.

19 **Q. WHAT OTHER INFRASTRUCTURE IS REQUIRED TO SUPPORT THE**
20 **PLANT?**

21 **A.** The plant will require water primarily for make-up to cooling towers and the
22 steam cycle. Water is also needed for fire protection and potable use. This
23 water will be supplied by the Beaufort-Jasper Water and Sewer Authority from a

1 new water treating facility located adjacent to the plant. Water "blowdown" from
2 the cooling towers and steam cycle will be returned to the water treating facility
3 for recycling reducing the volume of wastewater generated. The small amount of
4 wastewater generated by the facility will be delivered to the Hardeville
5 wastewater collection and treatment system for processing.

6 The electrical output of the facility will be delivered to our customers
7 through the 230 kV transmission grid. In addition to interconnection with the
8 SCE&G system, the substation will have transmission lines connecting to the
9 Santee Cooper and Southern Company systems. Generation connection impact
10 studies have been performed including power flow analysis, short circuit analysis,
11 and stability analysis. These studies indicate that with appropriate system
12 improvements the transmission grid will support the interconnection of this
13 generation project.

14 Existing South Carolina roads and highways will provide vehicular access
15 to the site.

16 **Q. WHAT ARRANGEMENTS HAS SCE&G MADE FOR THE CONSTRUCTION OF**
17 **THE PROJECT?**

18 **A.** SCE&G is negotiating a fixed price contract for the engineering, procurement and
19 construction (EPC) of the project with Duke/Fluor Daniel. Similar contracts were
20 negotiated for our Urquhart Repowering Project, currently under construction,
21 and our completed Cope Station. Construction will begin in the spring of 2002
22 with commercial operation of the plant scheduled for May 1, 2004. The contract

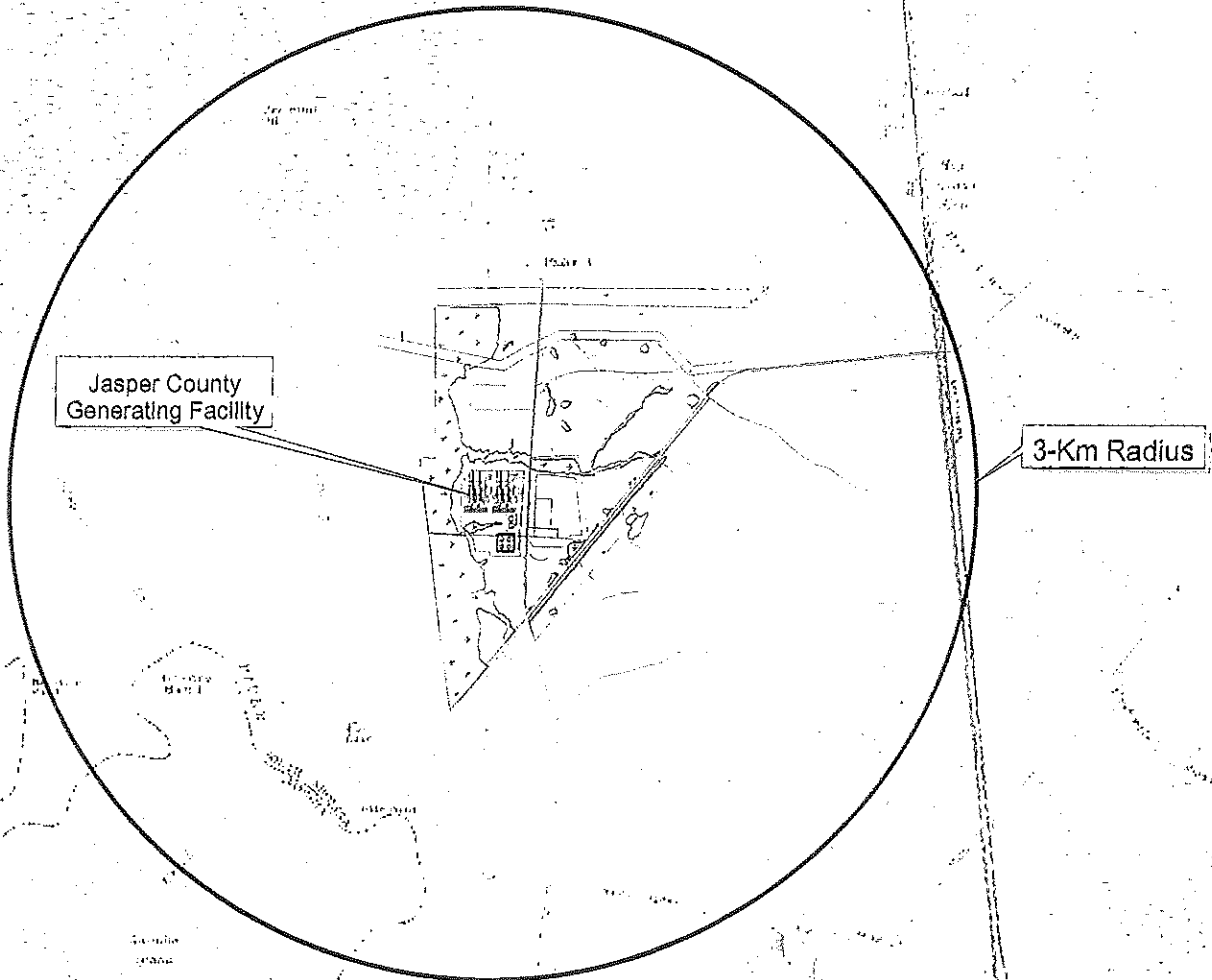
1 will include schedule and performance guarantees with associated liquidated
2 damages.

3 **Q. WHAT DOES SCE&G ESTIMATE THE TOTAL COST OF THE PROJECT TO**
4 **BE?**

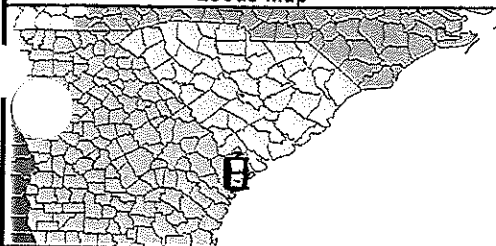
5 **A.** The total cost of the project including Allowance for Funds Used During
6 Construction (AFUDC) but excluding transmission system improvements will be
7 approximately \$450 million.

8 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

9 **A.** Yes.



Locus Map



USGS QUADRANGLES:
 Hardeeville, SC
 Rincon, SC
 Tillman, SC
 Hardeeville NW, SC

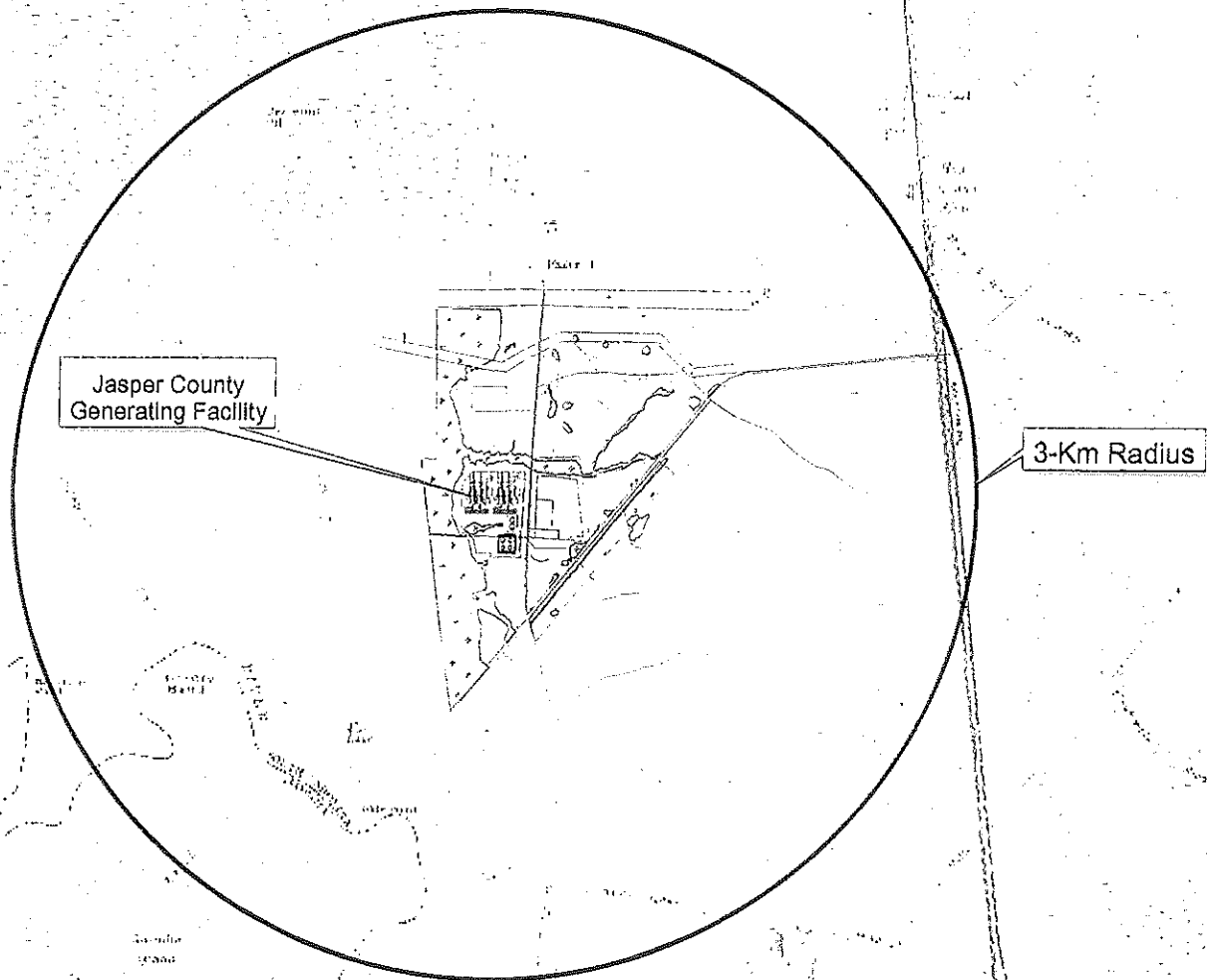
Jasper County Generating Facility

Figure 1-1 REGIONAL TOPOGRAPHIC MAP

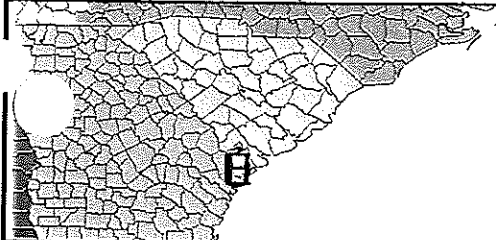
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Date:
 June 2001
 Drawn by:
 TOP
 Project Number:
 6147-018

ENSR
 INTERNATIONAL



Locus Map



USGS QUADRANGLES:
 Hardeeville, SC
 Rincon, SC
 Tillman, SC
 Hardeeville NW, SC

Jasper County Generating Facility

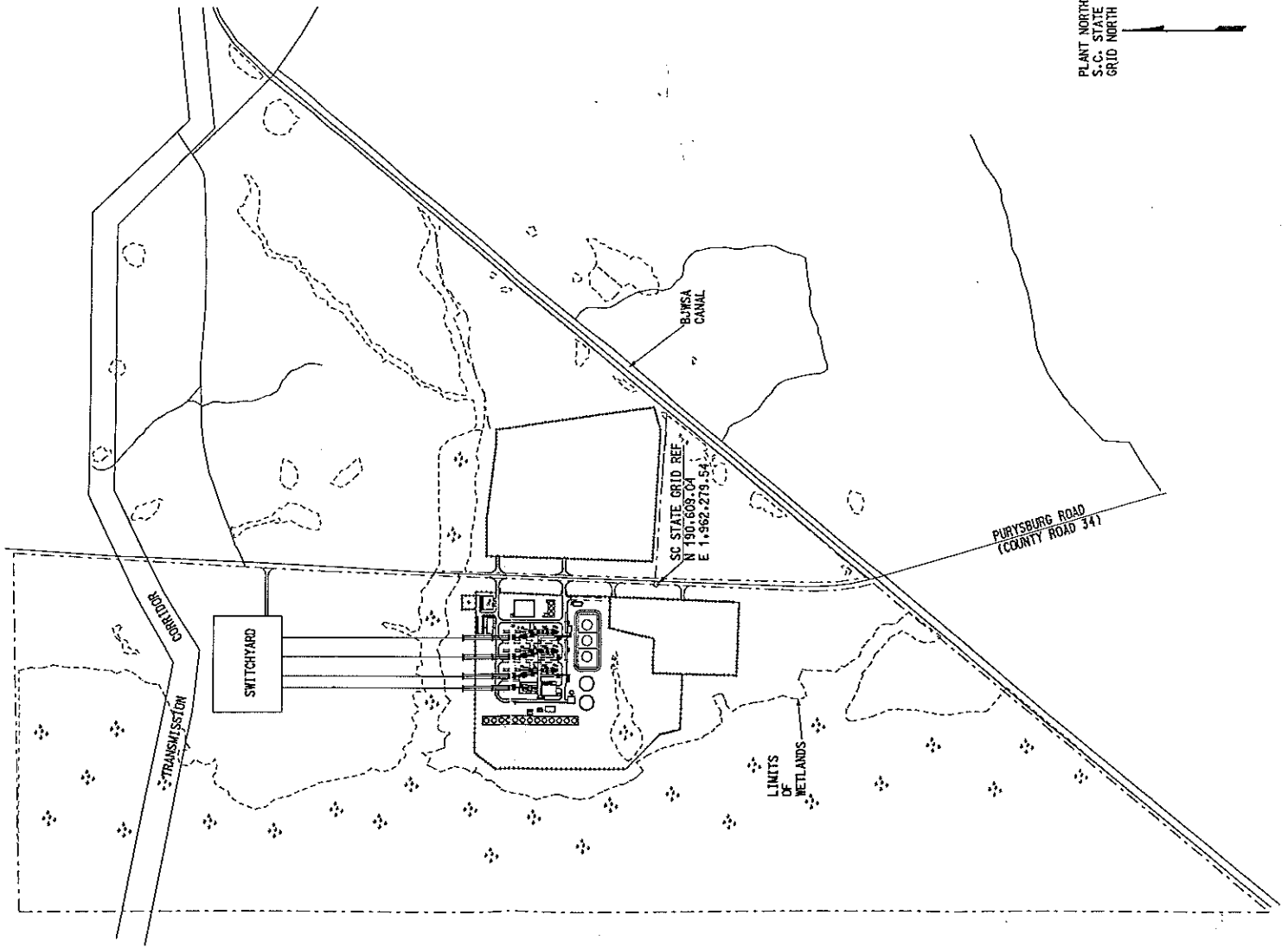
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PLANT NORTH &
S.C. STATE
GRID NORTH



JASPER POWER PROJECT
NEAR HARDEEVILLE, S.C.